CLAIMS

1. Method for a multi-layered removal of material from a work piece (15) having an optional three-dimensional surface shape (1) by a removal agent (9) manipulating the surface point by point, such as a laser, by which a surface structure (2) is realized on the three-dimensional surface, wherein work areas (10) are defined at the surface (1) and wherein one such area (10) is determined through the focal area (11) of the removal agent, characterized in that the surface (1) is approximated by superposed polygon networks (18), whereby each polygon (19) of the polygon network (18) is associated with the work area (10) for the removal agent (9).

2. Method according to claim 1, characterized in that that the surface structure (2) is described by at least one grey level bitmap (14).

3. Method according to claim 2, characterized in that the grey level bitmap (14) comprises image spots of different grey level (12) or different color levels.

4. Method according to claim 3, characterized in that either the brightness of the grey level (12) which corresponds to each image spot of the grey level bit map (14) or the intensity of the color level, determines the depth of the material removal.

5. Method according to claim 4, characterized in that the material removal is carried out in the number of layers (7) corresponding to the value of the grey level (12).

6. Method according to claim 1, characterized in that each layer (7) is associated with its own polygon network (18).

7. Method according to claim 1, characterized in that each polygon (19) to be manipulated on in each level (7) does not share an edge portion with one of the preceding manipulated polygons.

8.   Method for the multi-layered removal of material from a three-dimensional surface of any shape according to claim 1, wherein an original three-dimensional computer model (16) of the work piece (15) is generated and described through an original polygon network (17), whereby the three-dimensional corners of the polygon correspond to the two–dimensional spots in one or more of the master texture bitmap (3), and wherein the polygons are translated into the two-dimensional space of the master texture bitmap (3), wherein the grey level value (5) of one image spot (4) of the master texture bitmap (3) corresponds to the requisite material removal at the work piece (15) and the work area (10) comprises single layers, wherein the sum of the work areas (10) result in the sum of the surface (1) and the sum of the layers (7) result in the surface structure of the work piece (15), and each layer (7) is capable of being described through a polygon network (18) and the surface structure (2) of the work piece (15) is approximated by superposed polygon networks (18) offset to each other, whereby each polygon (19) of each polygon network (18) is associated within the work area (10) with a grey level bitmap (14) from a parallel projection of the master texture bitmap (3) onto the polygon, so that the removal of material by the removal agent can be realized in each layer (7) in correspondence to the value of the grey level bitmap (14).

9.   Method according to claim 8, characterized in that the master model is derived from the description of the work piece by CAD-(spline)- surfaces, which result in the original polygon network (17).

10. Method according to claim 8, characterized in that the brightness values of the grey level (12) of the grey level bitmaps (14) either before or during the treatment of the surface (1) of work piece (15) are computed back to the master texture bitmap (3).